

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

SPANSION LLC,	)	
	)	
Plaintiff,	)	
	)	
v.	)	C.A. No. 08-855 (SLR)
	)	
SAMSUNG ELECTRONICS CO. LTD.,	)	
SAMSUNG ELECTRONICS AMERICA, INC.,	)	
SAMSUNG SEMICONDUCTOR, INC.,	)	
SAMSUNG TELECOMMUNICATIONS	)	
AMERICA, LLC, AND SAMSUNG AUSTIN	)	
SEMICONDUCTOR, LLC,	)	
	)	
Defendants.	)	

**JOINT CLAIM CHART**

Below are charts containing the construction of claim terms of the asserted claims of United States Patent 5,831,901 (“‘901 patent”), U.S. Patent 5,991,202 (“‘202 patent”), U.S. Patent 6,246,610 (“‘610 patent”), U.S. Patent 6,433,383 (“‘383 patent”), U.S. Patent 6,455,888 (“‘888 patent”), U.S. Patent 6,509,232 (“‘232 patent”), U.S. Patent 5,173,442 (“‘442 patent”), U.S. Patent No. 5,567,987 (“‘987 patent”), and U.S. Patent No. 5,748,531 (“‘531 patent”). The left hand column contains the terms that the parties believe require construction. The second column identifies the location of the claims where the terms appear. Plaintiff Spansion LLC’s construction of the terms appear in the third column. Defendants’ construction of the terms appear in the fourth column.

A. U.S. Patent No. 5,831,901

Claim Term/Phrase	Claim(s)	Spanion's Proposed Construction	Samsung's Proposed Construction
<i>Preambles</i>	'901 patent claims 1, 4, & 8	Limiting for claims 1 & 4 only	Limiting for claims 1, 4 and 8
<i>"floating said source"</i>	'901 patent, claims 1 and 4	disconnecting the source terminal of the cell from its externally supplied fixed bias voltage	No construction necessary.  In the alternative, if a construction is necessary, then "isolating the source terminal of the cell from ground and a voltage supply"
<i>"floating said respective sources"</i>	'901 patent, claim 8	disconnecting the source terminals of the cells from their externally supplied fixed bias voltage	No construction necessary.  In the alternative, if a construction is necessary, then "isolating the source terminals of the cell from ground and a voltage supply"
<i>"applying a voltage, <math>v_d</math>"</i>	'901 patent claims 1 and 8	supplying a bias, $v_d$	supplying a fixed, non-zero voltage
<i>"applying a first voltage, <math>v_d</math>"</i>	'901 patent claim 4	supplying a first bias, $v_d$	supplying a first fixed, non-zero voltage

<b>Claim Term/Phrase</b>	<b>Claim(s)</b>	<b>Spanion's Proposed Construction</b>	<b>Samsung's Proposed Construction</b>
<i><b>"applying a predetermined voltage, <math>v_g</math>"</b></i>	'901 patent claim 1	supplying a predetermined, non-zero bias, $v_g$	supplying a predetermined, non-zero voltage, $v_g$
<i><b>"applying a second voltage, <math>v_g</math>"</b></i>	'901 patent claim 4	supplying a second, non-zero bias, $v_g$	supplying a second, non-zero voltage, $v_g$
<i><b>"applying a third voltage, <math>v_g</math>"</b></i>	'901 patent claim 4	supplying a third, non-zero bias, $v_g$	supplying a third, non-zero voltage, $v_g$
<i><b>"applying simultaneously a respective plurality of voltages, <math>v_g</math>"</b></i>	'901 patent claim 8	supplying simultaneously a respective plurality of non-zero biases, $v_g$	supplying simultaneously a respective plurality of non-zero voltages, $v_g$
<i><b>"cell" / "flash memory cell" / "memory cell"</b></i>	'901 patent claims 1, 4, 6, 8	"floating-gate transistor"	a memory cell having data programmed by hot electron injection and being erased by Fowler-Nordheim (FN) tunneling
<i><b>"responsive"</b></i>	'901 patent claims 1, 4, 6, 8	"reacting to"	uniquely corresponding
<i><b>"method of programming"</b></i>	1, 4	"storing values in a memory cell by charging the floating gate."	process for storing self-convergent values in

**B. U.S. Patent No. 5,991,202**

<b>Claim Term/Phrase</b>	<b>Claim(s)</b>	<b>Spanion's Proposed Construction</b>	<b>Samsung's Proposed Construction</b>
<i>“applying a program voltage as a plurality of pulses to a first word line”</i>	‘202 patent claim 1	pulsing a selected word line with a program voltage	applying a program voltage as multiple pulses in one programming loop to a first word line
<i>“applying a pass voltage as a plurality of pulses to word lines”</i>	‘202 patent claim 1	pulsing unselected word lines with a pass voltage	applying a pass voltage as multiple pulses in one programming loop to word lines
<i>“synchronously . . . the plurality of pass voltage pulses and the plurality of program voltage pulses having the same duration and periodicity”</i>	‘202 patent claim 1	there are a series of repeated time intervals where both pass voltage pulses and program voltage pulses are on, and there are a series of repeated time intervals where both pass voltage pulses and program voltage pulses are off	Samsung believes it is only appropriate to construe the limited phrase “synchronously . . . having the same duration and periodicity,” but to the extent the Court believes the full term should be construed Samsung’s proposed construction is “the plurality of pass voltage pulses and the plurality of program voltage pulses starting and stopping at the same time”
<i>“applying a program voltage to the first word line as a series of pulses and</i>	‘202 patent claim 14	pulsing a selected word line with a program voltage and pulsing to the unselected word lines with a	Samsung believes it is only appropriate to construe the limited phrase “simultaneously

Claim Term/Phrase	Claim(s)	Spanion's Proposed Construction	Samsung's Proposed Construction
<i>simultaneously and synchronously applying a pass voltage as a series of pulses"</i>		pass voltage, wherein there are a series of repeated time intervals where both pass voltage pulses and program voltage pulses are on, and there are a series of repeated time intervals where both pass voltage pulses and program voltage pulses are off	and synchronously applying a pass voltage as a series of pulses," but to the extent the Court believes the full term should be construed Samsung's proposed construction is "applying a program voltage to the first word line as a series of pulses and applying a pass voltage as a series of pulses starting and stopping at the same time as the series of program voltage pulses"
<i>"synchronously . . . having the same duration and periodicity"</i>	'202 patent claim 1	there are a series of repeated time intervals where both pass voltage pulses and program voltage pulses are on, and there are a series of repeated time intervals where both pass voltage pulses and program voltage pulses are off	starting and stopping at the same time
<i>"simultaneously and synchronously applying a pass voltage as a series of pulses"</i>	'202 patent claim 14	pulsing a selected word line with a program voltage and pulsing to the unselected word lines with a pass voltage, wherein there are a series of repeated time intervals where both pass voltage pulses	applying a pass voltage as a series of pulses starting and stopping at the same time as the series of program voltage pulses

Claim Term/Phrase	Claim(s)	Spanion's Proposed Construction	Samsung's Proposed Construction
		and program voltage pulses are on, and there are a series of repeated time intervals where both pass voltage pulses and program voltage pulses are off	
<i>Preambles</i>	'202 patent claims 1,14	Agreed: Limiting	
<i>"series of pulses"</i>	'202 patent claims 14-18	multiple pulses	multiple pulses in one programming loop

**C. U.S. Patent No. 6,246,610**

<b>Claim Term/Phrase</b>	<b>Claim(s)</b>	<b>Spansion's Proposed Construction</b>	<b>Samsung's Proposed Construction</b>
<i><b>"determining a set of program voltages that programs the nonvolatile memory device within a first specified time"</b></i>	'610 patent claims 2-13	an established set of program voltages that programs the nonvolatile memory device within a first specified time	calculating, using logic on said non-volatile memory device, a set of program voltages that programs the nonvolatile memory device within a first specified time
<i><b>determining an erase voltage that erases the nonvolatile memory device within a second specified time</b></i>	'610 patent claims 2-13	an established erase voltage that erases the nonvolatile memory device within a second specified time pulses	calculating, using logic on said non-volatile memory device, an erase voltage that erases the nonvolatile memory device within a second specified time
<i><b>determining if the average voltage of the set of program voltages is approximately equal to the erase voltage</b></i>	'610 patent claims 2-13	a comparison of the average voltage of the set of program voltages with the erase voltage made with the application of the program and/or erase voltages	calculating the average program voltage and evaluating whether said average program voltage is approximately equal to the erase voltage, using logic on said non-volatile memory device.
<i><b>"approximately equal"</b></i>	'610 patent claims 2-13	proximate to 1.0 V of the erase	within 1.0 V of the erase voltage

Claim Term/Phrase	Claim(s)	Spansion's Proposed Construction	Samsung's Proposed Construction
		voltage	
<i>"erase voltage"</i>	'610 patent claims 1-13	voltage applied to the substrate to erase a cell	a constant voltage applied to the substrate to erase a cell
<i>"average voltage of the set of program voltages"</i>	'610 patent claims 1-13	arithmetic mean of the set of program voltages	Samsung agrees to the following proposed construction, "arithmetic mean of the set of program voltages."
<i>"set of programming voltages"</i>	'610 patent claims 1-13	plurality of program voltages	series of incrementing program voltages



**D. U.S. Patent No. 6,433,383**

<b>Claim Term/Phrase</b>	<b>Claim(s)</b>	<b>Spanion's Proposed Construction</b>	<b>Samsung's Proposed Construction</b>
<i>“single continuous non-laminated dielectric layer”</i>	‘383 patent claim 1	“dielectric layer with non-layered regions having varying percentages of oxygen and nitrogen”	“a single dielectric layer formed in a single process step as opposed to separate deposition of a plurality of dielectric layers or films”
<i>“a first oxygen rich region, a nitrogen rich region, and a second oxygen rich region”</i>	‘383 patent claim 1	“a first oxygen rich region, a nitrogen rich region, and a second oxygen rich region”	“a first oxygen rich region, a nitrogen rich region, and a second oxygen rich region, wherein said regions are portions of a single layer as opposed to separately deposited and distinct layers”

**E. U.S. Patent No. 6,455,888**

<b>Claim Term/Phrase</b>	<b>Claim(s)</b>	<b>Spansion's Proposed Construction</b>	<b>Samsung's Proposed Construction</b>
<b><i>"substantially U-shaped gap"</i></b>	'888 patent claims 7-9	Spansion objects to Samsung including this term as indefinite. Spansion did not propose this term for construction. Furthermore, Samsung has already identified this term as indefinite in its invalidity contentions and Spansion has provided a response.	Samsung contends that the term "a substantially U-shaped gap" is indefinite.
<b><i>"U-shaped gap having gently sloping sidewalls"</i></b>	'888 patent claims 7-9	"gap, substantially in the in shape of a U, with non-vertical sidewalls"	To the extent it can be construed, Samsung proposes the following construction:  "a substantially U-shaped gap having sidewalls with a slope of less than 60 degrees with respect to the substrate surface"
<b><i>"substantially free of abrupt steps"</i></b>	'888 patent claims 7-11	"substantially free of abrupt vertical transitions"	Samsung contends that the term "substantially free of abrupt steps" is indefinite.

Claim Term/Phrase	Claim(s)	Spanion's Proposed Construction	Samsung's Proposed Construction
<i>"oxygen-nitride-oxygen (ONO) having a substantially uniform thickness after being deposited over the floating gates and the gap"</i>	'888 patent claims 8 and 11	"an ONO layer that is deposited over the gap having gently sloping sidewalls, the layer having a sufficiently uniform thickness so that when the layer is etched, formation of ONO fences is mitigated"	"ONO having a height perpendicular to the substrate surface that is substantially the same at the gap sidewalls as it is above the floating gates and above the field oxide"
<i>"gap"</i>	'888 patent claims 7, 10	"an opening between a floating gate of a first memory cell and the floating gate of an adjacent memory cell"	Agreed
<i>"gap sidewalls"</i>	'888 patent claims 7, 10	"sidewalls of a gap"	"floating gate (poly I) sidewalls that form the gap"
<i>"gently sloping"</i>	'888 patent claims 7, 10	"a slope such that a layer of material is deposited over the floating gate and the gap will be substantially free of abrupt steps"	"having a slope of less than 60 degrees with respect to the substrate surface"
<i>"substantially uniform thickness"</i>	'888 patent claims 8, 11	"thickness, sufficiently uniform such that when an ONO layer is deposited over a gap having gently sloping sidewalls and the layer is etched, formation of ONO fences is mitigated"	"height perpendicular to the substrate surface that is substantially the same at the gap sidewalls as it is above the floating gates and above the field oxide"

**F. U.S. Patent No. 6,509,232**

<b>Claim Term/Phrase</b>	<b>Claim(s)</b>	<b>Spanion's Proposed Construction</b>	<b>Samsung's Proposed Construction</b>
<b><i>"tunnel dielectric material"</i></b>	'232 patent claims 1-2 and 10-19  (Samsung: 1, 12)	"a material of a type suitable as a tunnel dielectric"	"a material that comprises a tunnel dielectric"
<b><i>"floating gate material"</i></b>	'232 patent claims 1-2 and 10-19  (Samsung: Claims 1-2, 10, 13, 15, 17)	"a material of a type suitable as a floating gate"	"a material that comprises a floating gate"
<b><i>Preambles</i></b>	'232 patent claim 1	Agreed: Limiting	
<b><i>"flash memory cells"</i></b>	'232 patent claim 1	Agreed: "memory cells in the core area of a flash memory device each comprising a tunnel dielectric, a floating gate, a floating gate dielectric, and a control gate"	
<b><i>"logic circuitry"</i></b>	'232 patent claim 1	"circuit in the periphery area of a flash memory device comprising MOSFET (metal oxide semiconductor field effect transistor)"	"circuitry in the periphery area of a flash memory device comprising MOSFETs (metal oxide semiconductor field effect transistors)" that contain a gate dielectric and a gate electrode"

**G. U.S. Patent No. 5,173,442**

<b>Claim Term/Phrase</b>	<b>Claim(s)</b>	<b>Spanion's Proposed Construction</b>	<b>Samsung's Proposed Construction</b>
<i>Preamble</i>	'442 patent claim 3	Agreed: Limiting	
<i>"the first etch"</i>	'442 patent claim 3	"an etch that erodes at least some of the insulating layer"	<p>No construction required. To the extent this term needs to be construed, Samsung proposes:</p> <p>"a first process or set of processes for removing one or more materials using chemical and/or physical means"</p>
<i>"the second etch"</i>	'442 patent claim 3	"an etch that erodes the second soft mask and the insulating layer"	<p>No construction required. To the extent this term needs to be construed, Samsung proposes:</p> <p>"a second process or set of processes for removing one or more materials using chemical and/or physical means"</p>

Claim Term/Phrase	Claim(s)	Spanion's Proposed Construction	Samsung's Proposed Construction
<i>"to at least partially remove the insulating layer where the via is exposed"</i>	'442 patent claim 3	"to remove by erosion with the first etch at least some of the insulating layer where the via is exposed"	No construction required. To the extent this term needs to be construed, Samsung proposes:  "to partially or completely remove the insulating layer where the via is exposed"
<i>"to remove the insulating layer where the channel is exposed and to remove any of the insulating layer remaining where the via is exposed"</i>	'442 patent claim 3	"to remove by erosion with the second etch both all the insulating layer where the channel is exposed and any insulating layer where the via is exposed"	No construction required. To the extent this term needs to be construed, Samsung proposes:  "to remove the insulating layer where the channel is exposed and to remove the insulating layer where the via is exposed if any insulating layer remains"

Claim Term/Phrase	Claim(s)	Spanion's Proposed Construction	Samsung's Proposed Construction
<i>"so that the channel and the via are formed"</i>	'442 patent claim 3	"so the second etch forms the channel and may complete formation of the via"	No construction required. To the extent this term needs to be construed, Samsung proposes:  "so as to form the channel and the via"
<i>"insulating layer"</i>	'442 patent claim 3	"a layer of one or more contiguously deposited materials selected as poor conductors of electricity"	"a layer made of one or more materials that are poor conductors of electricity"
<i>"via"</i>	'442 patent claim 3	"a vertical structure that provides electrical connectivity between the upper and lower conductive layers"	"a hole that vertically extends through an insulating layer"
<i>"etch"</i>	'442 patent claim 3	"a process for removing material using a chemical means"	"a process or processes for removing one or more materials using chemical and/or physical means"

Claim Term/Phrase	Claim(s)	Spanion's Proposed Construction	Samsung's Proposed Construction
<i>"soft mask"</i>	'442 patent claim 3	"an erodible material used to protect selected areas during etch"	"a mask is an erodable layer of material used to cover selected areas of a surface during etch. A soft mask erodes more rapidly than a hard mask, which erodes slowly or not at all"
<i>"an opening to expose the channel and via"</i>	'442 patent claim 3	"an opening absent of soft mask material such that the channel is exposed and the via is exposed"	"an opening in the second soft mask where the channel and via are to be formed"



**H. U.S. Patent No. 5,567,987**

<b>Claim Term/Phrase</b>	<b>Claim(s)</b>	<b>Spansion's Proposed Construction</b>	<b>Samsung's Proposed Construction</b>
<b><i>"containing hydrogen"</i></b>	'987 patent claim 1	"having hydrogen present in the nucleation layer"	No construction required. To the extent this term needs to be construed, Samsung proposes:  "containing hydrogen such as a nucleation layer comprising a silylation layer or comprising a hydrogen-treated layer"
<b><i>"a hydrogen-treated layer"</i></b>	'987 patent claim 10	"a layer with a hydrogen-terminated surface after its formation"	No construction required. To the extent this term needs to be construed, Samsung proposes:  "a layer treated with hydrogen"
<b><i>"on"</i></b>	'987 patent claim 1	"separate from and in contact with"	"in contact with"

Claim Term/Phrase	Claim(s)	Spanion's Proposed Construction	Samsung's Proposed Construction
<i>"silylation layer"</i>	'987 patent claim 2	"a layer into which a silyl group (represented chemically as R <sub>3</sub> Si-) has been introduced"	"a layer formed by performing a silylation, including a layer formed by exposure to SiH <sub>4</sub> , Si <sub>2</sub> H <sub>6</sub> , hydrogen plasma, or a silicon hydride that generates reactive radicals such as Si*, H*, SiH* or SiH <sub>2</sub> *"

**I. U.S. Patent No. 5,748,531**

Claim Term/Phrase	Claim(s)	Spanion's Proposed Construction	Samsung's Proposed Construction
<i>"a circuit for controlling a common source line in a semiconductor memory device"</i>	'531 patent claims 1 and 14	"a common source line control circuit residing outside of a memory array"	<p>No construction required. To the extent this term needs to be construed, Samsung proposes:</p> <p>"a common source line control circuit"</p>

Claim Term/Phrase	Claim(s)	Spansion's Proposed Construction	Samsung's Proposed Construction
<b><i>“resistor”</i></b>	‘531 patent claims 1-9, 12-14, and 17-20	“a two-terminal circuit component with negligible variation in definite resistance to limit current flow or provide a voltage drop”	“a device with a resistance”
<b><i>“a [the] resistor [is] coupled in series with the first transistor to reduce the [a]voltage across the first transistor”</i></b>	‘531 patent claims 1 and 12	“a resistor used in series with and as a snap back limit to the voltage across the first transistor”	<p>No construction required. To the extent this term needs to be construed, Samsung proposes:</p> <p>“a [the] device with a resistance [is] coupled in series with the first transistor to reduce the [a] voltage across the first transistor”</p>